National Aeronautics and Space Administration

MARSHALL STAR

Serving the Marshall Space Flight Center Community

Dec. 3, 2009

CFC 'crunch time'

As the 2009 Combined Federal Campaign nears its Dec. 11 end, organizers and volunteers across the Marshall Space Flight Center are busier than ever. At left, Steve Tucker, an aerospace engineer in the Engineering Directorate's Propulsion Research & Technology Branch, receives a "Crunch Time" snack from Linda Gomez, Marshall's CFC executive vice chairperson for promotions. Gomez and other CFC organizers distributed hundreds of free bags of chips – each with a reminder of the approaching CFC deadline – outside the Building 4203 cafeteria

Dec. 1. At right, Oren Kornberg, a thermal analyst with Jacobs Engineering who supports the Marshall Center's Engineering Directorate, prepares toys and other gifts for local families in need at Christmas Charities Year Round on Jordan Lane in Huntsville. Kornberg was among more than a dozen Marshall volunteers who visited the non-profit organization Nov. 30, helping to clean and wrap gifts, label envelopes and prepare items for delivery. For an update on Marshall CFC fundraising, see the contribution chart on page 5.

NASA uses twin processes to develop tank dome technology

By Kim Newton

NASA has partnered with Lockheed Martin Space Systems in Denver, Colo., and MT Aerospace in Augsburg, Germany, to successfully manufacture the first full-scale friction stir welded and spun formed tank dome designed for use in large liquid propellant tanks.

The NASA and Lockheed Martin team traveled to Germany to witness the first successful aerospace application of two separate manufacturing processes: friction stir welding, a solid-state joining process, and spin forming, a metal working process used to form symmetric parts.

The twin processes were used by MT Aerospace to produce an 18-foot-diameter tank dome using high-strength 2195 aluminum-lithium. The diameter of this development dome matches the tank dimensions of the upper stage of the Ares I launch vehicle

See ***Tank*** *on page 5*

Space shuttle Atlantis lands Nov. 27 after 11-day mission

By Sanda Martel

Space shuttle Atlantis and its crew of seven astronauts ended an 11-day journey of nearly 4.5 million miles with a Nov. 27 landing at the Kennedy Space Center, Fla.

"Just an amazing mission – an on-time launch, and an on-time landing," said Bill Gerstenmaier, NASA Associate Administrator for Space Operations, at a news conference a few hours after Atlantis landed.

The mission, designated STS-129, included three spacewalks and the installation of two platforms to the International Space Station's truss, or backbone. The platforms hold large spare parts that will sustain station operations after the shuttles are retired. The shuttle crew delivered about 30,000 pounds of replacement parts for systems that provide power to the station, keep it from overheating and maintain its proper orientation in space.

STS-129 Commander Charlie Hobaugh was joined on the mission by Atlantis Pilot Barry Wilmore and Mission Specialists Leland Melvin, Randy Bresnik, Mike Foreman and Bobby Satcher. Atlantis returned with station resident Nicole Stott, who spent 91 days in space. This marks the final time the shuttle is expected to rotate station crew members.

"STS-129 was just a phenomenal team effort," Gerstenmaier said. "It's been a great year for us but we have a lot of activity still in front of us."

With Atlantis and its crew safely home, the stage is set for launch of shuttle Endeavour on its STS-130 mission, targeted for February 2010. Endeavour will deliver the "Tranquility" pressurized connecting module, which will provide room for many of the space station's life support systems. A seven-window cupola, to be used as a control room for robotics, also will be delivered and connected to the orbiting outpost. The mission will include three spacewalks.

Space shuttle Atlantis, photographed by the Expedition 21 crew aboard the space station, soon after the shuttle and station undocked Nov. 25.

STS-129 was the fifth space shuttle mission to fly in 2009.

Shuttle missions scheduled to complete the space station, and their targeted launch dates, are STS-130 on Feb. 4, 2010; STS-131 on March 18; STS-132 on May 14; STS-134 on July 29; and STS-133 on Sept. 16.

For more information about the STS-129 mission, visit http://www.nasa.gov/mission_pages/shuttle/main/index.html.

Martel, an AI Signal Research Inc. employee, supports the Office of Strategic Analysis & Communications.

Obituaries

Watson Bynum, 90, of Huntsville died Nov. 4. He retired from the Marshall Center in 1994 as a program analyst.

Lawrence Wear, 74, of Huntsville died Nov. 8. He retired from the Marshall Center in 1990 as a launch vehicle project supervisor.

Burch Houston Aldridge, 93, of Slidell, La., died Nov. 13. He retired from the Marshall Center in 1980 as a contract specialist supervisor. He is survived by his wife, Gertrude Aldridge.

Rabon Page, 82, of Huntsville died Nov. 13. He retired from the Marshall Center in 1988 as a mission operations integration engineer. He is survived by his wife, Laura Jane Vaughn Page.

Two vying for election to Marshall's NASA Exchange Council

Two Marshall Space Flight Center employees are seeking to fill a vacant position on Marshall's NASA Exchange Council.

The candidates are Joshua Harrison, a budget analyst in the Office of the Chief Financial Officer, and Gerald Maxwell, an aerospace engineer in the Engineering Directorate.

The electronic election for the two-year position will begin Dec. 4 and conclude Dec. 18. To vote, visit http://exchange.msfc.nasa.gov/mars_vote/login_act.cfm.

Only civil service employees are eligible to vote. Results will be announced in an upcoming Marshall Star.

"The new council members will help shape the direction of the Exchange," said Bill Mayo, the Exchange manager. "Its primary mission is to provide services that promote the health and welfare of Marshall team members. The council also is active in funding centerwide events, including the Marshall cookout and the annual holiday reception."

Harrison and Maxwell share a common goal: to work for the good health and welfare of the employees at Marshall.

"My goals for the Exchange are to provide a fresh perspective on the various benefits and services offered, to offer new ideas and to provide the Marshall team with an enthusiastic employee advocate on the council," Harrison said. "I have some previous experience with morale and welfare events, along with employee services, and look forward to the opportunity to bring that experience to bear on Exchange activities."

Joshua Harrison

Gerald Maxwell

Maxwell said he uses the Exchange facilities "extensively" and wants to give back to the Marshall community. "There is a bright future for our center," he said, "and we should all want to make contributions to make it even better."

To vote, visit http://exchange.msfc.nasa.gov/mars_vote/login_act.cfm.

Marshall's SPoRT hosts Science Advisory Council meeting

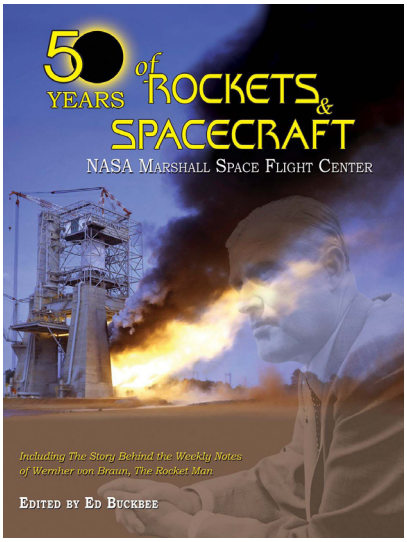
The Marshall Space Flight Center's Short-term Prediction Research and Transition Center – known as SPoRT – hosted the Science Advisory Council meeting at the center Nov. 18-20. At right, Dr. Tsengdar Lee, scientific computing portfolio manager of the Science Mission Directorate at NASA Headquarters in Washington, addresses the committee. The SPoRT project is well known for applying NASA data and unique research capabilities to improve short-term weather forecasts on a regional and local scale. Scientists involved in Earth and atmospheric science fields representing NASA, the National Oceanic and Atmospheric Administration, universities and the private sector attended the meeting to learn more about improved methods to transition unique weather observation data to the weather community. This council meets every two years with SPoRT scientists to provide guidance and recommendations about future transition projects.

'50 Years of Rockets and Spacecraft' book signing set Dec. 12

Marshall Space Flight Center team members, retirees and families are invited to a book signing Dec. 12 by Ed Buckbee, first director of the U.S. Space & Rocket Center and a former Marshall public affairs officer.

Buckbee will sign new editions of the book "50 Years of Rockets and Spacecraft" from 11 a.m. to 1 p.m. at the Barnes & Noble bookstore at 2750 Carl T. Jones Drive in Huntsville.

Produced by the Marshall Retiree Association and edited by Buckbee in celebration of NASA's 50th anniversary, the book is the Marshall team's story,



recounting the historic spaceflight accomplishments of the center. The book includes personal weekly notes written by Marshall's first director, Wernher von Braun. The notes were discovered recently in the NASA archives.

The book, released Nov. 2, is available at the Space Shop in Building 4203.

For more information, visit http://www.air-space.com/new_page_1.htm or e-mail Buckbee at buckbee@air-space.com.

For more information about the Marshall Retiree Association and how to join, visit http://www.marshallretirees.org.

Classified Ads

To submit a classified ad to the Marshall Star, go to Inside Marshall, to "Employee Resources," and click on "Employee Ads — Submit Ad." Ads are limited to 15 words, including contact numbers. No sales pitches. Deadline for the next issue, Dec. 10, is 4:30 p.m. Thursday, Dec. 3.

Miscellaneous

Four 20-inch chrome Arelli rims, $500 obo; black office-style fridge, 2'x2'x3', $100. 813-598-4373 or 532-3934

Snapper high-vacuum riding mower, 30-inch cut, needs new 12.5-hp engine, $100. 325-0085

Three orchestra seats to "The Drowsy Chaperone," VBC Concert Hall, Jan. 10, 2 p.m. 714-3303

Bowflex XLT, $400 obo. 227-9623

Kasson pool table, model-Auburn, fruitwood, Queen Anne feet, leather pockets, all accessories, $2,500. 880-6563

10,000-pound equalizer hitch for pulling trailer, $125. 431-2499 or 990-9741

Paintball auto loader, $15; paintball full mask, $15, both for $25. 527-0110

King size bed, firm, frame, $300. 461-9305

Xbox 360, two wireless/one wired controller, Rock Band, two guitars, four games, more, $399. 652-5274

Vehicles

2007 HONDA CIVIC SI, four door, 24k miles, $17,900. 506-7352

2005 Ford F-150 XLT, four door, crew cab, 8 cylinder 4.6, cloth seats, $12,600. 683-3932

2004 Harley Davidson FXDL DynaLowRider, gold/black, windshield, sundowner seat with backrest, 3,530 miles, $8,000. 509-3392

2005 Lexus ES330, silver, leather, loaded, 99k miles, $15,000 obo. 651-8965

2002 Mazda MPV, 79k miles, seats seven, new brakes, $5,500. 721-6599

1999 Jeep Wrangler ST, AC, 4WD, auto, cruise, $6,000. 430-3566

1998 Toyota Camry LE, V4, auto, Michelin tires, 86k miles, $4,600. 461-6459

1998 RS180 Stingray, bowrider, seats seven, new 140hp I/O engine, livewell/cooler, ski equipment. 640-6427

1997 Buick LeSabre, V6, all power, leather, 85K actual miles, $3,000. 759-0478

1995 Cadillac Deville Sedan, leather, 94k miles, $4,500. 830-1445

1992 GMC diesel pickup truck, white, 150k miles, $3,500. 379-4010

Honda CRF250X, shop manual, 30 hours, $3,500 obo. 498-3700

Wanted

Motorcycles to repair, HD or metric, certified HD technician. 430-9667

Star Wars Legos. 682-9018

City Select North America Software for Garmin GPS V unit. 616-1562

Tile work to do: floors, back splashes, bathrooms, tubs/showers, etc. 468-8906

Found

Black PDA belt holster; earring with three different colored stones; reading glasses; black suede ladies left shoe; red cell phone back plate. 544-4680

Free

Black Lab, 4 1/2 years old, female, spayed, house broken. 684-7937

Tank *Continued from page 1*

under development by NASA, as well as the central stage of the European Ariane V launcher.

"This new manufacturing technology allows us to use a thinner, high-strength alloy that will reduce the weight of future liquid propellant tanks by 25 percent, compared to current tank designs that use a lower-strength aluminum alloy that weighs more," said Louis Lollar, project lead for the Friction Stir Weld Spun Form Dome Project at the Marshall Space Flight Center.

The concave-net shape spin forming process, patented by MT Aerospace, drastically simplifies the manufacturing of large tank domes and reduces cost by eliminating manufacturing steps, such as machining and assembly welding, that are required when manufacturing traditional gore panel – a pie-shaped section of the tank dome – construction domes.

"The success of this project is proof positive that when innovation, partnership and expertise are brought together, we can deliver new capabilities at lower cost with greater reliability for NASA and the nation's space program," said Jeb Brewster, project manager of the Friction Stir Welded Spun Formed Domes project at Lockheed Martin Space Systems. "This team has pushed the envelope by using existing commercial materials combined with cutting-edge technology. The results provide the potential for a significant improvement over the current processes and materials being used today."

The spherical tank dome was manufactured from a flat plate "blank" made of the 2195 alloy. The blank was constructed by friction stir welding together two commercial, off-the-shelf plates in order to produce a large starting blank, reducing the cost of raw materials. The welded plate blank was then spun formed to create the single-piece tank dome.

A full-scale spherical tank dome measuring 18 feet in diameter was produced from high-strength 2195 aluminum-lithium using twin manufacturing processes.

This is the first time this combination of twin manufacturing processes has been successfully applied to produce a full-scale 2195 aluminum-lithium dome.

"This achievement also demonstrates that international cooperation between the United States and Europe can achieve very promising and concrete results with mutual benefits for future space programs," said Judith Watson, program manager of Structures, Materials and Mechanisms for the Exploration Technology Development Program Office at NASA's Langley Research Center in Hampton, Va. "Lockheed Martin and MT Aerospace have set up a very efficient and effective development team."

Two additional, full-scale development tank domes are scheduled for manufacture and testing in coming months as part of the joint, two-year technology demonstration program.

Since 2006, NASA has invested in the Friction Stir Weld Spun Form Dome Project, which is managed by the Exploration Technology Development Program.

Newton is a public affairs officer in the Office of Strategic Analysis & Communications.

Combined Federal Campaign nears $490,000

As of Nov. 29, the Marshall Space Flight Center team has raised $488,407 for the Combined Federal Campaign. The center's goal for the 2009 fundraiser, which ends Dec. 11, is $625,000. For more information, visit http://inside.msfc.nasa.gov/announcements/cfc_info.html. For insight on CFC from Marshall Center Director Robert Lightfoot, visit https://conversation.msfc.nasa.gov.

Marshall holiday reception to be held Dec. 3

The Marshall Space Flight Center will usher in the holiday season with its annual centerwide reception Dec. 3 from 1-3 p.m. in the Activities Building 4316.

Hors d'oeuvres and sweet treats will be served. Live entertainment will be provided by Shane Adkins, a technician with EG&G supporting the Marshall Center's Environmental Engineering & Occupational Health Office.

Team members are invited to bring a canned food item or other non-perishable to the reception to contribute to the Food Bank of North Alabama.

For more information and complete bus service routes, visit http://inside.msfc.nasa.gov/announcements/msfc-holiday-reception.html.

Lighting up the season

Dozens of Marshall Space Flight Center team members braved chilly temperatures Nov. 30 for the lighting of the tree in front of Building 4200. The crowd sang carols, enjoyed hot cocoa and sweets – and rubbed elbows with St. Nick himself – who joined Marshall Center Director Robert Lightfoot to flip the switch to light up the tree, officially ushering in the holiday season.

Eagerly awaiting the arrival of "a jolly old elf" at the Marshall Center's annual tree-lighting ceremony is Cody Johnson, left, the son of Charmeine Johnson, a systems analyst in the Office of the Chief Information Officer. Cody and other children from Marshall's Child Development Center led the crowd in holiday song during the ceremony.

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